BEFORE THE CALIFORNIA ENERGY COMMISSION

Summer 2005 Electricity Supply & Demand Outlook.	)))	05-SDO-1

SOUTHERN CALIFORNIA EDISON COMPANY'S COMMENTS ON MARCH 21, 2005 WORKSHOP OF SUMMER 2005 ELECTRICITY SUPPLY AND DEMAND OUTLOOK

Southern California Edison Company ("SCE"), hereby files its Comments on the Summer 2005 Electricity Supply & Demand Outlook workshop held on March 21, 2005 ("Comments"). SCE apologizes for the tardiness of this document, its untimeliness was unavoidable in light of the recent religious holiday.

I. SUMMARY OF SCE'S COMMENTS

SCE has comments in four general areas:

1. SCE recommends that the CEC clarify whether it is forecasting a 1:10 temperature event, a 1:10 load event, or a 1:10 supply-demand imbalance. A 1:10 load event and a 1:10 temperature event are different primarily because the peak-day temperature can occur on a weekend or holiday day, and if that happens, the peak load, which has always occurred on a weekday, on SCE's system in modern times, and the peak temperature day will occur on different days. If a 1:10 supply-demand imbalance event is to be forecast, the joint probability distribution of supply and demand must be considered. If supply and demand are independent, for example, the probability of 1:10 peak load occurring at the same time as 1:10 low supply conditions is 1:100. Based on SCE's probability analysis, the CEC staff methodology may actually yield a 1:14 peak load forecast, not 1:10, since it does not adjust for the weekend effect.
2. The CEC staff combined SCE and SDG&E into one area, SP26. For SDG&E, CEC staff only used one weather station (Lindberg Field) for estimating the load and 1:10 weather, which, because of the geographical location, results in a very high variation in peak day temperatures. This led the CEC staff to recommend a higher "1:10" load for all of SP26.
    a. The CEC staff should use the weighted average of 3 weather stations for SDG&E, and analyze those results as opposed to just using Lindberg. We believe that

using 30 or 42 years of data to analyze the weighted average of three weather stations is superior to using 54 years of one station, especially if that weather station is Lindberg Field.

b. To the extent that the CEC staff's methodology adds to SP26 1:10 load by including a much higher variation in the SDG&E area than in the SCE area, this additional load should be allocated to SDG&E and not to SCE.

c. Furthermore, the CEC did not take into account load coincidence between the two areas, as there is a good likelihood that the SCE and SDG&E systems will not achieve their maximum peak loads simultaneously.

3. In calculating Planning Reserves and Operating Reserves in the base case and in the 1:10 case, SCE believes that the CEC should include the Demand Side Management (Demand Response) resources. This is especially true for "stress" case analysis, such as 1:10 temperatures or higher forced outage rates, which is exactly the sort of conditions during which these programs were designed to be used.

SCE has just announced a 5% rate increase, due to higher electricity procurement costs. In allocating the rate increase, the CPUC has approved that larger portions of the increase be allocated to residential usage in the high-use tiers. As residential customers with summer usage in tiers 3 and 4 become aware that their marginal rate has increased by possibly 10% (rate design has not been finalized), and as TOU customers realize that the percentage change in their energy rates for on-, mid, and off-peak may be the same but the actual c/kwh rate increase is much greater on-peak, SCE anticipates that there will be some price elasticity effect on peak, although SCE does not have a method to estimate the effect.

SCE expands on these concerns in the following pages, provides the Committee with the historical SCE forecast accuracy, and expands on the calculation of 1:10. SCE is in the process of writing a white paper on the probabilistic approach to adjust a historical series of peak day temperatures on any day to the forecast of an expected weekday temperature, and will submit it when it is completed. SCE will continue to analyze the 1:10 methodology and data, and work with CEC staff to discuss the concerns we raise to see where common ground can be found.

II. DISCUSSION OF SCE CONCERNS

1. SCE disagrees with methodology and assumptions used by Staff in calculation "1:10" Load.

First, SCE questions whether the purpose of the CEC's task is to determine a 1:10 Load or the load associated with a 1:10 Temperature? Because the highest temperature in any year has approximately a 30% probability of falling on a weekend, a 1:10 temperature based on looking at a history of highest annual temperature on any day (weekday or weekend) will produce an estimate of load that is approximately 1:14. Likewise, a method that correctly estimates a 1:10 load will be based on a temperature that is approximately 1:7. Second, SCE has several concerns with the results reported by CEC staff. For example, the CEC staff data does not show much difference between historical peak day temperatures for "all days" versus "weekdays only." This is equivalent to saying that the peak-day temperature can never occur on a weekend (or a holiday) for that matter. However, this statement seems counter-intuitive and is contradicted by history—SCE has observed peak temperature days on weekends and holidays in the past.

SCE's analysis of historical peak-day temperatures on its system indicates the average including all weekend and holiday days is over ½ degree higher than if all weekend and holiday days are ignored. We use five stations whereas CEC staff use four. Our equation for calculating effective temperature is more complex than the CEC Staff's and we believe better captures the effect of temperatures and humidity on load. Additionally, SCE's equations of load versus effective temperature have significantly higher r^2 values than the CEC staff's equation (e.g., SCE gets r^2 values of 0.95 or greater versus the Staff's model with an r^2 of 0.83). Thus, the SCE method explains more of the variation in summer weekday

peak demands and leaves less peak demand as "unexplained error" than the CEC staff's method. SCE considers its exact method confidential, but is willing to share it with CEC staff if such information would be treated confidentially and not subjected to public disclosure. Normally, we would submit that arguments of "my r^2 is better than yours" are spurious and a distraction from underlying issues and the same may be true in this case. However, it will take more time than was available to test CEC staff data in our model, our data in their model, and to identify the impact on the load forecast of using one equation versus the other.

Given the foregoing caveats, any bias in data or methodology will be reflected in both forecasts of baseline 2005 peak demand and the 2005 1:10 peak. It affects both forecasts since it would impact the weather-adjusted 2004 starting point for the forecast for 2005. Although 2003 data was used as the example in the CEC staff's report, the CEC staff used 2004 SCE load data (which is not yet public) for calculating a weather-adjusted value for 2004, from which they applied their previously forecast 2004 to 2005 growth rate. Any bias in the starting point affects both the 1:2 and 1:10 forecasts for 2005. SCE used 2004 load data to calculate our weather–adjusted starting point, and developed a new forecast of the 2004 to 2005 growth in peak demand.

Third, CEC staff picked the fifth-highest simulated peak out of 54 years of peak day temperature data as their 1:10 peak. Again, this is a straightforward but simplistic approach. There are other straightforward methods using probability analysis to determine the 1:10 temperature. These methods are based on the standard deviation of the peak day temperatures, and the probability of a 1:10 occurrence. This is SCE's preferred method,

rather than just taking the fifth highest simulated peak. If the objective is to calculate the load that has 1:10 probability of being exceeded, further adjustments must be made.

Also, although it does not affect the fifth year results, we note from the CEC staff simulation results that higher temperatures do not always result in higher estimated loads. This does not seem consistent with their equation. For example, the highest simulated peak for 2003 uses temperatures that occurred on September 2, 1955 (27,661 MW at 106.3 degrees), whereas the actual highest temperature in the CEC's 54 years of data was 107.0 degrees on September 13, 1971. The CEC's model simulation yielded a peak forecast of 27,653 MW using the 1971 temperatures. Thus, 1971 had a higher temperature but its simulation gave a lower estimated peak than the 1955 temperature.

SCE is developing a whitepaper on the probabilistic approach, and will submit it when completed. However, SCE has not yet compared its approach to that of the CEC staff with regard to calculating the difference in load that occurs from using the fifth highest temperature versus a probabilistic approach.

2. The CEC staff used a single station to estimate both the weather sensitivity of SDG&E load and the 1:10 expected temperature. By using one station, Lindberg Field, the CEC staff produces results that are biased upward in estimating the 1:10 temperature because of both the geographical location of Lindberg Field and because using only one coastal station rather than a weighted average of several representative stations creates a wider standard deviation. SDG&E commented that they use a weighted average of three stations—Lindberg, Miramar, and El Cajon. By using only one station, the CEC staff incorrectly raises the standard deviation of the entire SP26 area, increasing their estimate of the 1:10 load.

a. If staff continues to use only Lindberg station in its analysis, the increase in the SP26 1:10 load forecast and any resource requirement due to the higher standard deviation of Lindberg Field temperatures should be attributed to SDG&E and not to SCE.

b. SCE believes that the standard deviation of peak day temperatures of a single coastal weather station will be greater than the standard deviation of the weighted average of several stations. We believe this is especially true if using a coastal station like Lindberg to forecast SDG&E load, when much of their weather sensitive load is inland where average summer temperatures are significantly higher, but the standard deviation may be less. CEC staff should do this analysis and inform the Committee before the Committee takes any action on 1:10. For example, when evaluating our own temperature data, a coastal weather station peak day temperature has a standard deviation almost 50% higher than the system average peak day temperature standard deviation. According to CEC staff data, Lindberg field has a standard deviation almost twice (13% versus 7%) of the average for the SCE area. Thus, both based on our study of our data, and based on our forecasters' experience and local knowledge of the SDG&E geography and population distribution, the high standard deviation for Lindberg makes it an inappropriate single station to use in weather adjusting and forecasting SDG&E load. A weighted average of three stations, even over a shorter time period, should be analyzed before CEC staff's recommended forecasts should be considered.

By comparison, although SCE uses five weather stations in short term forecasting, when analysis does not have very short deadlines we have usually employed a weighted average of 8-12 weather stations. This larger number of stations better reflects the climatic diversity, and each station will have a smaller weight so that no one station can have the extreme influence on results as did the CEC staff's use of just Lindberg for SDG&E.

3. The CEC staff did not take into account in the "1:10" analysis the dispatchable Demand Response programs (current demand side response programs, including large customers on interruptible tariffs and residential customers on air conditioner cycling programs) for which SCE has a reliable estimate of on-peak savings. These programs have been in place for many years, they were used to a maximum extent during the energy crisis, SCE has used them on occasion since the crisis, and SCE tests the interruptible customer communication system on a monthly basis..

4. The staff did not account for the additional demand side management programs SCE is installing for Summer 2005.

5. SCE just announced that it would raise rates starting April 15th, 2005 by five percent for all customers. However, in the rate design for the residential customers, the increase all falls on the tier 3 and tier 4 usage levels (above 135 percent of baseline usage), which at first estimate would rise by about 10 percent (final rate design is still underway). Residential customers with summer month usage in tiers 3 and 4 will likely respond in some manner to an increase in the marginal electricity rates. These customers likely have more "discretionary" electricity use (eg

central A/C, swimming pool pumps) than a baseline energy use customer, and thus can respond to a price increase if they choose to.

II. SUMMARY OF FORECAST ERRORS

The Committee requested that SCE provide our accuracy of year-ahead forecast of peak demand. SCE commented that the simple error, with over-forecast errors offsetting under-forecast errors, was about 1% error, excluding the years impacted by the energy crisis. The absolute value of the error was about 2%. Those statements were based on our analysis of forecast versus recorded data. The tables below present the percentage forecast errors for forecasts made in the fall and spring for the following summer peak. The percent error of forecast, versus recorded peak are shown on Table 1 (Simple error) and Table 2 (Absolute Error). The percentage error of forecast versus weather adjusted peak are shown on Table 3 (simple error) and Table 4 (Absolute error).

TABLE 1

SCE 1 YEAR AHEAD SIMPLE PERCENT FORECAST ERROR

Year	Date Forecast Made	Feb-99	Mar-00	May-01	Apr-03	Oct-03	Apr-04
1999		-2.539					
2000			1.423				
2001				11.291			
2002							
2003					-2.338		
2004						-1.565	-0.645

SIMPLE % ERROR

Average 1 Year Ahead Forecast Error	0.94
1 Year Ahead Forecast	-1.13

Error Excluding May 2001 Forecast

TABLE 2

SCE 1 YEAR AHEAD ABSOLUTE VALUE OF PERCENT ERROR

Year	Date Forecast Made	Feb-99	Mar-00	May-01	Apr-03	Oct-03	Apr-04
1999		2.539					
2000			1.423				
2001				11.291			
2002							
2003					2.338		
2004						1.565	0.645

ABSOLUTE VALUE OF PERCENT ERROR

Average 1 Year Ahead Forecast Error	3.30
1 Year Ahead Forecast Error Excluding May 2001 Forecast	1.70

TABLE 3

SCE 1 YEAR AHEAD SIMPLE PERCENT ERROR-- WEATHER ADJUSTED

Year	Date Forecast Made	Feb-99	Mar-00	May-01	Apr-03	Oct-03	Apr-04
1999		-3.345					
2000			0.444				
2001				4.806			
2002							
2003					-4.578		
2004						-3.359	-2.455

SIMPLE % ERROR

Average 1 Year Ahead Forecast Error	-1.41
1 Year Ahead Forecast Error Excluding May 2001 Forecast	-2.66

TABLE 4

SCE 1 YEAR AHEAD ABSOLUTE VALUE OF PERCENT ERROR -- WEATHER ADJUSTED

Year	Date Forecast Made	Feb-99	Mar-00	May-01	Apr-03	Oct-03	Apr-04
1999		3.345					
2000			0.444				
2001				4.806			

2002				
2003		4.578		
2004			3.359	2.455

ABSOLUTE VALUE OF PERCENT ERROR

Average 1 Year Ahead Forecast Error	3.16
1 Year Ahead Forecast Error Excluding May 2001 Forecast	2.84

March 29, 2005

California Energy Commission
Docket Office
Attn: Docket No. 05-SDO-1
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512

RE: 05-SDO-1

Dear Docket Clerk:

Enclosed for filing with the California Energy Commission is the original of Southern California Edison Company's Comments On March 21, 2005 Workshop Of Summer 2005 Electricity Supply And Demand Outlook in the above-referenced proceeding.

If you have any questions regarding this document, please call me at (916) 441-4114.

Very truly yours,

Gary Schoonyan

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Enclosures